

Serial No. 09/887,173
February 26, 2003
Page 2 of 6

REMARKS

Claims 1-5 are pending in this application. By this Amendment, Applicant CANCELS claims 6-15.

Applicant affirms election of Group I, including claims 1-5. Further, Applicant reserves the right to file a Divisional Application to pursue Groups II and III, including claims 6-15.

It is noted that Figs. 14-16 illustrate only that which is old. Accordingly, Applicant has amended Figs. 14-16 in the accompanying Request for Approval of Proposed Drawings Corrections to be designated as --Prior Art--.

Claims 1-4 were rejected under 35 U.S.C. § 102(e) as being anticipated by Ichikawa (U.S. 6,462,633). Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ichikawa in view of Graebner et al. (U.S. 6,049,155). Applicant respectfully traverses the rejections of claims 1-5.

Claim 1 recites:

"A surface acoustic wave device, comprising:
a piezoelectric substrate; and
at least two basic sections disposed on said piezoelectric substrate,
each of the at least two basic sections including **an asymmetrical double electrode** defining a half wavelength section and **having first and second strips with different widths from each other;**
wherein **an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm 10^\circ$ or approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range of angles.**" (emphasis added)

Applicant's claim 1 recites the features of "an asymmetrical double electrode ... having first and second strips with different widths from each other" and "an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm 10^\circ$ or approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range

Serial No. 09/887,173
February 26, 2003
Page 3 of 6

of angles." With the improved features of claim 1, Applicant has been able to provide a surface acoustic wave device using an asymmetrical double electrode which achieves superior unidirectionality of surface acoustic wave propagation while effectively and easily controlling the reflection amount per basic section (see, for example, last full paragraph on page 8 of the Specification).

The Examiner alleged that Ichikawa shows asymmetrical double electrodes and "an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm 10^\circ$ or approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range of angles" as recited in Applicant's claim 1.

First, the Examiner has referred to **Fig. 5** of Ichikawa to show asymmetrical double electrodes as recited in Applicant's claim 1 and to **Figs. 11A and 11B** of Ichikawa to show "an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm 10^\circ$ or approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range of angles" as recited in Applicant's claim 1.

The Examiner is reminded that to anticipate a claim, a reference must not only teach every limitation of the claims but must also teach that the elements are arranged as required by the claim. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990) and MPEP § 2131. The Examiner has clearly mixed different embodiments of Ichikawa to allegedly teach each and every feature recited in the present claimed invention. That is, Ichikawa clearly fails to show in any one embodiment the claimed arrangement of both the features of "an asymmetrical double electrode ... having first and second strips with different widths from each other" and "an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm$

Serial No. 09/887,173
February 26, 2003
Page 4 of 6

10° or approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range of angles" as recited in Applicant's claim 1.

Second, the Examiner has quoted lines 45-52, column 8 of Ichikawa, "it may be possible to adjust vectors E11, E22, E33, and E44, precisely equivalent to the Applicants' vectors X1-X4 as shown in their fig. 16, so that these are situated in a first quadrant between 90° and 0° (which includes the claimed range of $45 \pm 10^\circ$) and on the A1 side and in a fourth quadrant side between 0° and 270° in the paragraph bridging pages 2 and 3 of the Office Action. The Examiner has clearly misquoted Ichikawa, and has interspersed his comments with the teachings of Ichikawa.

The Examiner should note that Applicant has amended **Fig. 16** to indicate that it is Prior Art in the accompanying Request for Approval of Proposed Drawings Corrections. That is, the feature of "an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm 10^\circ$ or approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range of angles" recited in Applicant's claim 1 is not directed to Applicant's **Fig. 16**. **Fig. 16** illustrates nothing more than the relationship between the reflection vectors in the edges X1 to X4 of a conventional asymmetrical double electrode, and is irrelevant to the present claimed invention.

As clearly shown in Fig. 11B, Ichikawa teaches that the reference position for measuring the angles is at the edge A1 of one of the basic sections, **NOT** that the reference position is at the center of one of the basic sections as recited in Applicant's claim 1. Ichikawa teaches, if using the same reference position as Applicant's, that the angle could be in between 0° and 270° (fourth quadrant) or in between 270° and 180° (third quadrant), **NOT** that the angle could be approximately $45 \pm 10^\circ$ (first quadrant) or approximately $135 \pm 10^\circ$ (second quadrant) as recited in Applicant's claim 1.

At best, the Examiner has established that is **possible** to modify Ichikawa such

Serial No. 09/887,173
February 26, 2003
Page 5 of 6

that "an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm 10^\circ$ or approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range of angles" as recited in Applicant's claim 1. The Examiner is reminded that a "claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. §102(e) as being anticipated by Ichikawa.

In anticipation of the Examiner relying upon Ichikawa in an obviousness rejection, Ichikawa clearly teaches away from Applicant's claimed invention. First, Ichikawa clearly teaches in the preferred embodiment that the width and position of the electrodes are adjusted such that the reflected waves cancel each other out such that the resultant reflected wave is zero. Further, as noted above, Ichikawa teaches that it is possible to adjust the resultant reflected wave, if using the same reference position as Applicant's, that the phase angle of the resultant wave could be adjusted to be in the third or fourth quadrant. That is, Ichikawa fails to provide any motivation why the resultant vector should have a phase angle in the first or second quadrant as recited in Applicant's claim 1. The Examiner is reminded that it is error to find obviousness where references diverge and teach away from the invention at hand. W.L. Gore & Assoc. v. Garlock Inc., 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983).

The Examiner has relied upon Graebner et al. to teach the use of quartz. However, Graebner et al. clearly fails to teach or suggest the features of "an asymmetrical double electrode ... having first and second strips with different widths from each other" and "an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately $45 \pm 10^\circ$ or

Serial No. 09/887,173
February 26, 2003
Page 6 of 6

approximately $135 \pm 10^\circ$, when a center of a respective one of said at least two basic sections is a reference position for the range of angles" as recited in Applicant's claim 1.

Accordingly, Applicant respectfully submits that Ichikawa and Graebner et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in claim 1 of the present application. Claims 2-5 depend upon claim 1, and are therefore allowable for at least the reasons that claim 1 is allowable.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: February 26, 2003


Attorneys for Applicant

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710

KEATING & BENNETT LLP
10400 Eaton Place, Suite 312
Fairfax, VA 22030
Telephone: (703) 385-5200
Facsimile: (703) 385-5080